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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ANDUJAR, LEONARDO

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/751,214

Applicant(s)

NEOGI ET AL.

Examiner

Leonardo Andújar

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-13, 23 and 25-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-13, 23 and 25-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11. 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/03/2003 has been entered. Accordingly, pending in this Office action are claims 1-3, 5-13, 23 and 25-27.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 5-7, 11, 13, 23 and 25-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Tao (US 6,410,981).

4. Regarding claim 1, Tao (e.g. fig. 3) shows a package comprising:

➤ A substrate 3 with an inner surface to which a die 4 is to be attached, forming electrical connections 6 through the substrate, between the die and the exterior of the package (col. 1/lls. 39-42);

- A lid 1 with an inner surface facing the inner surface of the substrate;
- Thermal attach 7 disposed between the die and the inner surface of the lid;
- And sealant 2 disposed between the substrate and the lid in a pattern with at least one break 11 in the pattern remaining subsequent to the substrate and the lid being assembled together.

5. Regarding claim 2, Tao shows that the package is a ball grid array package (fig. 3).

6. Regarding claim 3, Tao discloses that the substrate is a pin grid array (col. 1/ll. 42).

7. Regarding claim 5, Tao shows vent holes 10 formed through the lid (e.g. fig. 7)

8. Regarding claim 6, Tao shows that sealant is disposed between the lid and the substrate in a substantially rectangular pattern with at least one break (5A).

9. Regarding claim 7, Tao shows that the rectangular pattern has four breaks, one in each side of the substantially rectangular pattern.

10. Regarding claim 11, Tao teaches that substrate is susceptible to absorbing moisture and the pressure existing between the substrate and the lid is a result of moisture being released within the package by the substrate and being converted to steam (col. 1/lls. 43-62)

11. Regarding claim 13, Tao teaches that the die attached to the substrate using controlled collapsed chip connections 8.

12. Regarding claim 23, Tao (e.g. fig. 3) shows a package comprising:

- A substrate 3 with an inner surface;

- A lid 1 with an inner surface facing the inner surface of the substrate;
- A die 4 on which electronic circuit is disposed, enclosed between the substrate and the lid, and attached to the inner surface of the substrate which provides electrical connections the die and the exterior of the package (col. 1/lis. 39-42);
- Thermal attach 7 disposed between the die and inner surface of the lid;
- And sealant 2 disposed between the substrate and the lid in a pattern with at least one break 11 in the pattern remaining subsequent to the substrate and lid being assembled together.

13. Regarding claim 25, Toa shows that sealant is disposed between the lid and the substrate is a substantially rectangular patter with at least one break (5A).

14. Regarding claim 26, Tao shows that the rectangular pattern has four breaks, one in each side of the substantially rectangular pattern.

15. Regarding claim 27, Tao teaches that the die attached to the substrate using controlled collapsed chip connections 8.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tao (US 6,410,981).

18. Regarding claim 8, Tao discloses most aspects of the instant invention including a rectangular pattern having four breaks, one in each side of the substantially rectangular. Tao does not explicitly disclose that the four breaks comprise a minimum 10% of the rectangular pattern. Nonetheless, the specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In *re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). The specific length of the break claimed by applicant, i.e., a minimum 10% of the rectangular pattern, absent any criticality, is only considered to be the "optimum" length of the break pattern disclosed by the Prior Art that a person having ordinary skill in the art would have been able to determine using routine experimentation based, among other things, on the desired accuracy, manufacturing costs, etc. (see In *re Boesch*, 205 USPQ 215 (CCPA 1980)).

19. Regarding claim 9, Tao shows most aspects of the instant invention. However, Tao does not disclose that the sealant pattern is shaped to include breaks at the corners. Nonetheless, this limitation, absent any criticality, is only considered to be an obvious modification of the shape of the sealant pattern disclosed by Prior Art as the courts have held that a change in shape or configuration, without any criticality, is within the level of skill in the art as the particular shape claimed by applicant is nothing more than one of numerous shapes that a person having ordinary skill in the art will find

obvious to provide using routine experimentation based on its suitability for the intended use of the invention. See In re Dailey, 149 USPQ 47 (CCPA 1976).

20. Regarding claim 10, Tao discloses most aspects of the instant invention including a rectangular pattern having four breaks, one in each corner of the substantially rectangular pattern. Tao does not explicitly disclose that the four breaks comprise a minimum 10% of the rectangular pattern. Nonetheless, the specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). The specific length of the break claimed by applicant, i.e., a minimum 10% of the rectangular pattern, absent any criticality, is only considered to be the "optimum" length of the break pattern disclosed by the Prior Art that a person having ordinary skill in the art would have been able to determine using routine experimentation based, among other things, on the desired accuracy, manufacturing costs, etc. (see In re Boesch, 205 USPQ 215 (CCPA 1980)).

21. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tao (US 6,410,981) in view of Harper.

22. Regarding claim 12, Tao discloses most aspects of the instant invention including a wiring substrate 3. Tao does not disclose the substrate comprises an organic material. Harper discloses that polyimides (organic and insulating) are extensively used in the electronic industry (i.e. multiplayer circuit board, chip carrier, laminates, flexible

circuits etc) because they have good heat resistance and good electrical properties at high temperatures (page 1.9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the Tao's substrate of polyimide (organic and insulating) in order to provide an insulating material having good heat resistance and good electrical properties at high temperatures as taught by Harper.

Response to Arguments

23. Applicant's arguments with respect to claims 1-3, 5-13, 23 and 25-27 have been considered but they are not persuasive.

24. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., adhesive) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

25. Applicant argues that Tao does not teach a sealant disposed between the substrate and the lid in a pattern with at least one break in the pattern remaining subsequent to the substrate and the lid being assembled together. However, Tao (e.g. fig. 3) clearly shows this sealant disposed between the substrate 3 and the lid 1 in a pattern with at least one break in the pattern remaining subsequent to the substrate and the lid being assembled together.

26. Applicant argues that Tao does not show that the pattern in which the sealant is disposed between the lid and the substrate is substantially rectangular with at least one break. Nonetheless, Toa (e.g. fig. 5) shows this limitation.

27. In summary Applicant argues the strengthening ring 2 disclosed by cannot be considered a sealant. Although the applicant uses terms different to those of Tao to label the claimed invention (i.e. sealant), this does not result in any structural difference between the claimed invention and the prior art. The use of different terminology to describe the plurality of elements that constitute an integrated circuit as this is just a writing style and the way in which a structural limitation is expressed does not affect the configuration of the described elements. Furthermore, the term "sealant" can be broadly interpreted as any material used to seal. Note that term "sealant" does not necessary imply a specific material (see the attach definition).

Conclusion

28. Papers related to this application may be submitted directly to Art Unit 2826 by facsimile transmission. Papers should be faxed to Art Unit 2826 via the Art Unit 2826 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2826 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2826 Fax Center is to be used only for papers related to Art Unit 2826 applications.

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Leonardo Andújar** at **(703) 308-0080** and between the hours of 9:00 AM to 7:30 PM (Eastern Standard Time) Monday through Thursday or by e-mail via Leonardo.Andujar@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn, can be reached on (703) 308-6601.

Art Unit: 2826

30. Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 305-3900**.

31. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass (es): 257/683, 778,796; 438/108, 124	06/03
Other Documentation:	
Electronic Database(s): East (USPAT, US PGPUB, JPO, EPO, Derwent, IBM TDB)	06/03

Leonardo Andújar

Patent Examiner Art Unit 2826

LA

6/13/03